NAVAL SURFACE WARFARE CENTER CARDEROCK DIVISION PHILADELPHIA, PA 19112		DEPARTMENT OF THE NAVY NAVAL SURFACE WARFARE COMMAND PHILADELPHIA, PA				
PREPARED B. McCoy	Date 6/1/2012	MOBI Installation Validation Test Procedure				
CHECKED M. DiTroia	Date 6/1/2012					
APPROVED K. Poole	Date 6/1/2012	SIZE	CAGE CODE	WT GP	NAVSSESS SKETCH NO	REV
ACCEPTED FOR NAVSEA K. Poole		A	-	-	7644	-
		SCALE: NONE		SHEET 1 OF 10		

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Revision Summary			
Revision Number	**Date**	**Summary**	**Author**
	6/1/2012	Basic	Brendan McCoy

1.0 Purpose

This procedure is designed to verify the safety, security, signal connectivity, configuration, internal and external system interfaces, and operating functionality of the Man Overboard Indicator (MOBI) System on LCS-3.

2.0 Personnel Required

a. Two (2) Ship's Force Representatives

b. Government Representative

Estimated Time Required: 2 Hours

3.0 Test Equipment

a. Jumper wire (for activating transmitter)

4.0 Prerequisites

All components of the MOBI system must be installed on the ship.

5.0 General Notes / Acceptance Criteria

a. This test will be deemed successful when the following procedure can be accomplished as described without problems.

b. Test personnel shall read and familiarize themselves with this test procedure prior to conducting the test.

c. Failures and unsatisfactory conditions requiring corrective action will be documented and corrected as required. Use the Supplementary Comment sheet for additional comments.

d. If problems preventing safe continuation of the test are encountered, stop the test immediately and notify ship's force.

6.0 References

None

7.0 Overview

This procedure will test the operational capabilities of the newly installed MOBI system comprising of the DF-101 direction finder, RX-103 receiver, and TX-104 transmitters on LCS-3.

8.0 Preliminary

SAFETY INSTRUCTIONS, PRECAUTIONS & WARNINGS

Comply with all shipboard regulations concerning operation of machinery, including Safety Tag Out requirements. Standard safety precautions in accordance with OPNAVINST 5100 Series shall be observed. Ensure that all requirements pursuit to NSTM Chapter 300 are adhered to. Ensure cognizant ship's personnel are notified prior to the start of testing, and upon conclusion. Test Director shall ensure unauthorized and unnecessary personnel shall stand clear of test areas for duration of test.

NOTE: Ensure all required authorizations from ship's personnel to conduct testing are obtained prior to conducting test. Notify cognizant personnel prior to energizing equipment or changing operating configuration.

a. Brief all personnel involved in testing evolution.

b. Obtain permission from ship's force that system is ready for testing.

9.0 Equipment Serial Numbers

Record the serial numbers from the following parts.

Equipment	Serial No.
Display, Direction Finder (DF), ORCA DF-D-101 (Pilot House)	
Direction Finder (DF) Antenna, ORCADF-A101 (Pilot House)	
MOBI TX-104 Transmitters	
Receiver, ORCA RX-103	
Receiver Antenna, ORCARX-A102	
Antenna, GPS, ORCARX-GA102A	
Display, Direction Finder (DF), ORCA DF-D-101 (RHIB)	
Direction Finder (DF) Antenna, ORCADF-A101 (RHIB)	

10.0 System Operational Verification Test Procedure

**Note: Parts of the test for the Pilot House Direction Finder and the Receiver may be accomplished in conjunction with each other using the same transmitter.

10.1. RECEIVER

a. Power up MOBI Receiver (ORCA RX-103) by pushing the rocker panel switch to **ON.** Verify that Receiver's LCD displays **Scanning** on home screen.

SAT____ UNSAT____

b. Press the **Register Sailor Information** button and follow the steps to link a sailor's name and rank to a transmitter. Verify that the information has been saved.

SAT____ UNSAT____

a. Press the **Night Mode** Button on the LCD. Verify that the background becomes black and the lettering becomes red. Press the **Backlight Settings** button and adjust the backlight level; verify that the lettering brightness changes accordingly.

SAT____ UNSAT____

b. Press the **Daytime Mode** Button on the LCD, verify that the display changes back to a white background with black lettering. Press the **Backlight Settings** button and adjust the backlight level; verify that the background brightness changes accordingly.

SAT____ UNSAT____

c. Press the **Alarm Settings** button on the LCD; adjust the alarm volume setting and verify that the volume changes accordingly by using the T**est Volume** button.

SAT____ UNSAT____

d. Press the **View Individual Logs** button on the LCD, enter the last 4 digits of a transmitter that has been previously activated on the ship. Verify that the last Man Overboard (MOB) activations for that transmitter are accurately displayed.

SAT____ UNSAT____

e. Press the **View Chron Logs** button on the LCD. Verify that the last MOB activations for all recently activated transmitters are accurately displayed.

SAT____ UNSAT____

f. Turn off power to the receiver by turning off the appropriate circuit breaker, verify that the receiver's backup battery works and the LCD again displays **Scanning**.

SAT____ UNSAT____

g. With the circuit breaker still turned off, activate a transmitter to simulate a Man Overboard (MOB) situation, verify that the alarm sounds on the receiver and that the sailor's information (which was set in step 10.1.b) is shown.

SAT____ UNSAT____

h. Turn the receiver off and disconnect the battery backup. Turn the receiver on and off again. Reconnect the battery backup, turn on the circuit breaker and turn on the receiver. Activate the transmitter and verify that the alarm sounds and that the sailor's information (which was set in step 10.1.b) is again shown.

SAT____ UNSAT____

i. Press the **Silence Alarm** button on the LCD and verify that the alarm silences accordingly.

SAT____ UNSAT____

j. Press the **Clear Selected MOB** button on the LCD and verify that the receiver clears the data from the activated transmitter by displaying **MOB Clear.** Do not deactivate the transmitter.

.

SAT____ UNSAT____

k. With the transmitter still activated wait until the receiver re-alarms. Then deactivate the transmitter by aligning the end of the transmitter's antenna with the deactivation recess. Verify that the receiver initially re-alarmed and then displayed **MOB Clear** after the TX-104 was deactivated.

SAT____ UNSAT____

l. Turn the circuit breaker back on to reconnect the receiver to ship's power. Record the Received Signal Strength Indication (RSSI). Remove the receiver antenna and again record the RSSI.

With Antenna_____ Without Antenna _____

Verify that the RSSI decreases when the antenna is removed.

SAT____ UNSAT____

m. Disconnect GPS antenna connector from antenna jack on RX-103. Verify that the LCD displays **No GPS Lock**.

SAT____ UNSAT____

n. Reconnect GPS antenna connector to antenna jack on RX-103. Verify that the LCD displays **GPS Valid**.

SAT____ UNSAT____

o. Take a transmitter to the bow and activate it to simulate a MOB. Verify that the alarm sounds on the receiver. Deactivate the transmitter by aligning the antenna tip with the deactivation recess, verify that the receiver displays **MOB Clear** and the alarm silences.

Bow: SAT____ UNSAT____

Activate the transmitter at the stern, quarterdeck, and 150 yards from the ship, deactivating the transmitter between each location. Verify that each time the receiver is activated the receiver alarm sounds and the LCD displays the MOB's transmitter information. Verify that the LCD displays **MOB Clear** and the alarm silences each time the transmitter is deactivated.

Stern: SAT____ UNSAT____

Quarterdeck: SAT____ UNSAT____

150yds from Ship: SAT____ UNSAT____

p. Activate the transmitter again 150 yards away from the ship and bring it towards the ship. Verify that the RSSI increases (becomes a smaller negative number) as the transmitter is brought closer to the antenna.

SAT____ UNSAT____

10.2. DIRECTION FINDER: PILOT HOUSE

a. Turn on the Direction Finder (DF) by holding the power button for 3 seconds. Verify that the unit powers on, all the LEDs illuminate briefly to indicate the system is performing a self check, and that the power LED remains illuminated.

SAT____ UNSAT____

b. Toggle the speaker **On/Off** button. Verify that the speaker and speaker LED indicator react appropriately. Leave the speaker on after this step is completed.

SAT____ UNSAT____

c. Use the **SQUELCH +** and **SQUELCH –** buttons to adjust the squelch. Verify that the squelch reacts appropriately so static may be heard or not heard. Tune the squelch level by pressing **SQUELCH +** until audible static just goes away.

SAT____ UNSAT____

d. Cycle through the three brightness levels by pressing the **DIM** button. Verify that the brightness on the display changes accordingly.

SAT____ UNSAT____

e. Press the **SQUELCH –** and **DIM** buttons simultaneously to activate the **CLEAR** function. Verify that all the LEDs illuminate in the same pattern as when the unit was turned on when the **CLEAR** function is activated.

SAT____ UNSAT____

f. Activate a transmitter at the bow and observe the bearing on the DF. Repeat for the quarterdeck, stern, and 150 yards away from the ship. Verify that all the readings are +/- 10 degrees from the relative bearing of the transmitter from the DF antenna and that the bearing reading changes as the transmitter is moved around the ship. Keep in mind, the direction may vary given the range/type of interference in the area.

Bow: SAT____ UNSAT____

Quarterdeck: SAT____ UNSAT____

Stern: SAT____ UNSAT____

150 Yards away: SAT____ UNSAT____

g. Activate the transmitter again 150 yards away from the ship and bring it towards the ship. Verify that the received signal indication bar increases as the transmitter is brought closer to the antenna.

SAT____ UNSAT____

h. Press the **SQUELCH –** and **DIM** buttons simultaneously to activate the **CLEAR** function. Verify that all the LEDs illuminate in the same pattern as when the unit was turned on when the **CLEAR** function is activated.

SAT____ UNSAT____

i. Deactivate the transmitter; verify that the DF signal strength indicator goes to zero and that no bearing is displayed.

SAT____ UNSAT____

10.3. DIRECTION FINDER: RHIB

a. Record the operating voltage of the DF on the RHIB.

Voltage: _____

b. Turn on the Direction Finder (DF) by holding the power button for 3 seconds. Verify that the unit powers on, all the LEDs illuminate briefly to indicate the system is performing a self check, and that the power LED remains illuminated.

SAT____ UNSAT____

c. Toggle the speaker **On/Off** button. Verify that the speaker and speaker LED indicator react appropriately. Leave the speaker on after this step is completed.

SAT____ UNSAT____

d. Use the **SQUELCH +** and **SQUELCH –** buttons to adjust the squelch. Verify that the squelch reacts appropriately so audible may be heard or not heard. Tune the squelch level by pressing **SQUELCH +** until audible static just goes away.

SAT____ UNSAT____

e. Cycle through the three brightness levels by pressing the **DIM** button. Verify that the brightness on the display changes accordingly.

SAT____ UNSAT____

f. Press the **SQUELCH –** and **DIM** buttons simultaneously to activate the **CLEAR** function. Verify that all the LEDs illuminate in the same pattern as when the unit was turned on when the **CLEAR** function is activated.

SAT____ UNSAT____

g. Activate a transmitter in front of the bow of the RHIB and observe the bearing on the DF. Repeat for starboard, port, and stern. Verify that all the readings are +/- 10 degrees from the relative bearing of the transmitter from the DF antenna and that the bearing reading changes as the transmitter is moved around the RHIB. Keep in mind, the direction may vary given the range/type of interference in the area.

Bow: SAT____ UNSAT____

Starboard: SAT____ UNSAT____

Stern: SAT____ UNSAT____

Port: SAT____ UNSAT____

h. Position a transmitter within line of sight of DF antenna and activate it. Check that the DF signal strength indicator indicates that a signal is being received by the DF. Move the transmitter 150 yards away from the antenna. Verify that the signal strength indicator on the DF decreases as the transmitter is moved away.

SAT____ UNSAT____

i. Deactivate the transmitter; verify that the DF signal strength indicator goes to zero and that no bearing is displayed.

SAT____ UNSAT____

11.0 Supplementary Comment Sheet

Step #	Comments

11.0 Supplementary Comment Sheet

Step #	Comments

12.0 Completion Certification

Ship's Force Representative Printed Name: _____

Ship's Force Representative Signature: _____ Date: _____

Government Representative Printed Name: _____

Government Representative Signature: _____ Date: _____